



UW Bothell STEM Students design embedded controller for three phase voltage source converter (VSC)

A **Capstone Project** is a culminating senior project facilitated by the Electrical Engineering (EE) department and sponsored by a company in a related industry. The goal is for graduating seniors to demonstrate proficiency and skill in multiple EE areas.

The Challenge:

The Capstone project, sponsored by **Anderson Electric Controls (AEC)**, required the student team to design a new VSC control system that could be integrated with AEC's custom power modules. The converter will be used to provide a highly regulated DC power bus for adjustable speed drives, DC choppers, and other dynamic loads.

“What I will value most going forward is a sense that any challenge, no matter how daunting it may at first appear, can be achieved by those with the courage to dare, and the fortitude to continue.”

Student Team Member ”

The Results:

- The system was implemented on an actual 36kW VSC.
- Testing revealed excellent overall performance
- Improvements over current control system were very apparent.
- Voltage regulation and power factor correction gains of a factor of five or more over specification were measured.
- AEC is already receiving interest in the system from its clients, and the transformation from technology demonstrator to full product is underway.

